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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/230,111	05/17/1999	TAKA-AKI SATO	48962-A-PCT-	4836

7590 03/05/2004

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EXAMINER	
BLANCHARD, DAVID J	
ART UNIT	**PAPER NUMBER**
1642	33

DATE MAILED: 03/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/230,111	SATO ET AL.	
	Examiner	Art Unit	
	David J Blanchard	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/14/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *121-132,140 and 141* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *121-132, 140 and 141* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-120 and 133-139 were canceled and claim 121 has been amended in Paper No. 30.5 filed 11/12/2003.

2. Claims 121-132 and 140-141 are pending and under examination.

Sequence Requirements

3. In order to have compact prosecution a first office action can be performed on this application, however, this application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 C.F.R. § 1.821(a)(1) and (a)(2). This application fails to comply with the requirements of 37 C.F.R. §§ 1.821-1.825. The disclosure contains sequences that need SEQ ID numbers on page 11, lines 28-31. Applicant is reminded to check the entire disclosure to ensure that this application is in sequence compliance.

4. Any questions regarding compliance with the sequence rules requirements specifically should be directed to the departments listed at the bottom of the Notice to Comply.

5. APPLICANT IS GIVEN THE TIME ALLOTED IN THIS LETTER WITHIN WHICH TO COMPLY WITH THE SEQUENCE RULES, 37 C.R.F. §§ 1.821-1.825. Failure to comply with these requirements will result in ABANDONMENT of the application under 37 C.F.R. § 1.821(g). Extensions of time may be obtained by filing a petition

accompanied by the extension fee under the provisions of 37 C.F.R. § 1.136. In no case may an applicant extend the period for response beyond the six-month statutory period. Direct the response to the undersigned. Applicant is requested to return a copy of the attached Notice to Comply with the response.

Rejections Withdrawn

6. Claims 121-141 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn because claims 133-139 have been canceled in the amendment filed as Paper No. 30.5 on 11/12/2003 and claims 121-132 and 140-141 have been amended to remove the phrase "consisting essentially of".

7. The rejection of claims 121-132 and 139-141 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention is withdrawn because of amendments to the claims and claim 139 has been canceled in the amendment filed as Paper No. 30.5 on 11/12/2003.

8. The rejection of claims 121-132 and 139-141are under 35 U.S.C. 112, first paragraph as introducing new matter into the specification is withdrawn because the phrase "consisting essentially of" has been removed from the claims and claim 139 has been canceled in the amendment filed as Paper No. 30.5 on 11/12/2003.

9. The rejection of claims 121-132 and 140-141 under 35 U.S.C. 102(e) as being anticipated by Reed et al (U.S. Patent 5,876,939; issued March 2, 1999; effective U.S. filing date March 27, 1995) is withdrawn because amended claim 121 does not recite that the signal transducing protein is a peptide comprising the amino acid sequence (S/T)-X-(V/I/L) (SEQ ID NO:4) and claim claim 139 has been canceled in the amendment filed as Paper No. 30.5 on 11/12/2003.

Response To Arguments:

10. Claims 121-141 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods for screening for compounds that disrupt the binding of Fas with FAP, does not reasonably provide enablement for methods for screening for compounds that disrupt the binding of a CD4 receptor, a p75 receptor, a serotonin receptor, a serotonin 2B receptor, a NMDA receptor, or a K^+ channel, or a composition comprising a peptide selected from SEQ ID Nos. 9, and 11-16. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims is MAINTAINED. Applicant's arguments have been fully considered, but are not found persuasive.

Applicant's argue that the biological significance and the combinations of the interactions between a signal-transducing protein and a cytoplasmic protein are irrelevant for the purposes of enablement. Applicant's further state that the instant

specification (Figures 8-12 and Table 1 on page 3) and the prior art disclose several signal transducing proteins and the cytoplasmic proteins with which they interact. Applicant's conclude that the instant specification in combination with the state of the prior art and the skill level of one of ordinary skill in the art at the time of filing satisfy the enablement requirement.

A prior disclosure of signal-transducing proteins and the cytoplasmic proteins with which they interact does not provide an enabling disclosure for the full scope of the claimed methods without undue experimentation. While a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to identify a compound that inhibits the interaction between a signal-transducing protein and a cytoplasmic protein. The instant application essentially calls for the use of trial and error to attempt to find a compound that will inhibit the specific interaction between a signal transducing protein and a cytomplasmic protein, which is the method claimed in the instant application. A patent is not a reward for a search, but compensation for its successful conclusion. Reasonable detail must be provided in order to enable members of the public to understand and carry out the invention.

The instant disclosure describes an assay (yeast two hybrid system) for identifying a compound (i.e., a peptide) that inhibits the Fas/FAP-1 binding (see Figure 3), the instant disclosure also describes what to do with the "compounds" once they have been identified as inhibitory to the interaction between a signal-transducing protein

and a cytoplasmic protein. It discusses, for example, methods of inhibiting the proliferation of cancer cells, treating cancer cells, inhibiting and treating virally-infected cells, regulating or preventing apoptosis and pharmaceutical compositions comprising the "compound identified by the claimed method (see pages 18-27). By its own terms the instant application describes methods for "screening" and "evaluating" the effect of various compounds on the interaction between a signal-transducing protein and a cytoplasmic protein.

What the instant application does not do, however, is provide the necessary link between those two steps: actually finding a compound that works. It provides precious little guidance in the way of selecting a particular compound, or even of narrowing the range of candidates in order to find a suitable compound without the need for undue experimentation. The compound may be "antibodies, inorganic compounds, organic compounds, peptides, peptiomimetic compounds, polypeptides or proteins, fragments or derivatives which share some or all properties, e.g. fusion proteins" (see page 11, lines 10-17 and claim 127).

In short, the instant application describes a method for determining whether a given compound possesses certain desired characteristics, and identifies some broad categories of compounds that *might work*, these descriptions, without more precise guidelines, amount to little more than "a starting point, a direction for further research." *Genentech*, 108 F.3d at 1366. *See also Calgene*, 188 F.3d at 1374 ("the teachings set forth in the specification provide no more than a 'plan' or 'invitation' for those of skill in the art to experiment practicing [the claimed invention]; they do not provide sufficient

guidance or specificity as to how to execute that plan"); *National Recovery Technologies*, 166 F.3d at 1198 (stating that patent-in-suit "recognizes a specific need... and suggests a theoretical answer to that need. It provides a starting point from which one of skill in the art can perform further research in order to practice the claimed invention, but this is not adequate to constitute enablement"). The instant specification does not describe the claimed invention in terms that will "enable any person skilled in the art... to make and use" the invention commensurate in scope with the claims. At most, the specification will enable a person of ordinary skill in the art to attempt to discover how to practice the claimed invention.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

12. Claims 121-132 and 140-141 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Claim 121-132, 140 and 141 are indefinite for reciting "the cytoplasmic protein is no longer bound; and is no longer bound" in claim 121. It is unclear what is contemplated by the sub phrase "and is no longer bound". The sub phrase "and is no

longer bound appears redundant, however, the phrase could be referring to a different interaction wherein the ligands are no longer bound. Applicant is requested to clarify.

14. Claim 121-132, 140 and 141 are indefinite for reciting "and the signal-transducing protein bound to the cytoplasmic protein". It is unclear how the known compound previously shown to be able to (A)(i) displace the signal-transducing protein bound to the cytoplasmic protein or vice versa (B)(i), and (ii) form a complex with "the signal-transducing protein bound to the cytoplasmic protein". It is unclear how the known compound is expected to form a complex with the interacting molecules (i.e. signal-transducing protein bound to the cytoplasmic protein) and displace the interacting molecules at the same time. Does the known compound displace the complex or not? If the known compound does not displace the signal-transducing protein bound to the cytoplasmic protein, how is the signal-transducing protein-cytoplasmic protein-known compound complex detected?

15. Claim 121-132, 140 and 141 are indefinite for reciting "a method of identifying a compound" and for reciting "known compound" in claim 121. Is it unclear why the method of identifying a compound that inhibits specific binding between a signal-transducing protein and a cytoplasmic protein utilizes a "known compound" previously shown to displace the signal-trasnducing protein bound to the cytoplasmic protein or vice versa. Is the method directed towards identifying a compound that inhibits specific binding between a signal-transducing protein and a cytoplasmic protein or is the method directed towards using a known compound to identify an unknown interaction? As written, the method appears to be directed towards identifying a compound based on a

function (i.e inhibiting/displacing the signal-trasnducing protein bound to the cytoplasmic protein) that it already possesses. Further, is the "known compound previously shown..." recited in part a, of claim 121 the compound identified in the preamble of claim 121?

16. Claim 140 is indefinite for reciting "SLGI (SEQ ID NO:3), wherein each – represents... separates the alternative amino acids." The explanation of the symbols (i.e., dash, parenthesis, and slash) recited in claim 140 does not appear to be applicable to the SLGI sequence of claim 140 because no such designations exist in the recited sequence. Does the explanation of the symbols refer to the SLGI sequence or some other sequence?

Claim Rejections - 35 USC § 112

17. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

18. Claims 121-132 and 140-141 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. This is a NEW MATTER rejection.

a. Amended claim 121 adds the limitation that the compound forms a complex with the signal-transducing protein bound to the cytoplasmic protein.

The response filed 11/12/2003 did not state where support for the amendment or the newly submitted claims can be found in the originally filed claims and/or specification. There is no apparent support for this limitation recited in the originally filed claims or specification. Applicant is required to provide support for this limitation in the originally filed claims and/or specification or remove this limitation from the claims.

b. Amended claim 121 recites "wherein the signal-transducing protein... or is a composition comprising a peptide selected from the group consisting of amino acid sequences set forth in SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO: 13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16.

The response filed 11/12/2003 did not state where support for the amendment or the newly submitted claims can be found in the originally filed claims and/or specification. The sequences corresponding to SEQ ID NOS. 9, and 11-16 can be found on page 11, lines 28-31 of the instant disclosure and the disclosure further states "the invention provides for a composition when the signal-transducing protein has at its carboxyl terminus the amino acid sequence (S/T)-X-(V/I/L) (SEQ ID NO:4)" (see page 4, lines 14-17). The specification also addresses "a composition" as capable of inhibiting specific binding between a signal-transducing protein and a cytoplasmic protein and the signal-transducing protein has at its carboxyl terminus the amino acid sequence (S/T)-X-(V/I/L) (see page 4, lines 1-17 and page 12, lines 14-17). The specification does not support the recitation that the signal-transducing protein is a composition comprising a

peptide selected from the group consisting of amino acid sequences set forth in SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO: 13, SEQ ID NO:14, SEQ ID NO:15 and SEQ ID NO:16. The generic statement that the composition may be a peptide containing one of the following sequences (i.e., SEQ ID NOS. 9 and 11-16) (see page 11, lines 26-31) does not adequately support a signal-transducing protein comprising one of SEQ ID NOS. 9, 11-16. Applicant is required to provide support for this limitation in the originally filed claims and/or specification or remove this limitation from the claims. Applicant is advised that if the limitation, wherein the signal-transducing protein has at its carboxyl terminus the amino acid sequence (S/T)-X-(V/I/L) (SEQ ID NO:4) is reinstated into the claims, the prior art reference of Reed et al will be applied.

19. Claims 121-132 and 140-141 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

There is insufficient written description encompassing "a cytoplasmic protein" that specifically interacts with "a signal-trasnducing protein" because the relevant identifying characteristics of the genus such as structure of other physical and/or chemical characteristics of "a cytoplasmic protein" and "a signal-transducing protein" are not set forth in the specification as-filed, commensurate in scope with the claimed invention.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must

convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (see page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (see Vas-Cath at page 1116).

Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993) and Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016.

One cannot describe what one has not conceived. See Fiddles v.Baird, 30 USPQ2d 1481, 1483. In Fiddles v. Baird, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence. Thus, the specification fails to describe these DNA sequences. The Court further elaborated that generic statements are not adequate written description of the genus because it does not distinguish the claimed genus from others, except by function. Finally, the Court indicated that while applicants are not required to disclose every species encompassed within a genus, the description of a genus is achieved by the recitation of a representative number of DNA molecules, defined by nucleotide sequence, falling within the scope of the genus, See The Reagents of the University of California v. Eli Lilly and Company, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997).

Applicant is relying upon the Fas-FAP-1 interaction and the disclosure of a limited representative number of species to support an entire genus. The instantly claimed invention encompasses a method of identifying a compound that inhibits the "specific binding" between any disclosed signal-transducing protein and any cytoplasmic protein, yet the instant specification does not provide sufficient written description as to the structural features of any CD4 receptor, any p75 receptor, any serotonin 2A receptor, any NMDA receptor, any K channel, or any peptide comprising SEQ ID NO:9, SEQ ID Nos. 11-16 or any cytoplasmic protein. The reliance on the disclosed limited examples of a specific signal-transducing protein and an interacting cytoplasmic protein does not support the written description of any CD4 receptor, any p75 receptor, any serotonin 2A receptor, any NMDA receptor, any K channel, or any peptide comprising SEQ ID NO:9, SEQ ID Nos. 11-16 or any cytoplasmic protein.

With respect to a compound that would be suitable for use in the claimed invention, per the *Enzo* court's example of a description of an anti-inflammatory steroid couched "in terms of its function of lessening inflammation of tissues," which, the court stated, "fails to distinguish any steroid from others having the same activity or function," and which therefore, fails to satisfy the written-description requirement. Similarly, "a compound that inhibits specific binding between a signal-transducing protein and a cytoplasmic protein..." does not distinguish the compound from others having the same activity or function and as such does not satisfy the written-description requirement. Mere idea or function is insufficient for written description; isolation and characterization at a minimum are required. The identity of the compound, and the description must

convey what the compound is, and not just what it does. The instant application discloses no more than a hoped-for function for an as-yet-to-be-discovered compound, and a research plan for trying to find it.

The guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112 first paragraph "written description" requirement make clear that if a claimed genus does not show actual reduction to practice for a representative number of species; then the requirement may be alternatively met by reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 column 3).

In the absence of structural characteristics that are shared by members of the genus of CD4 receptors, p75 receptors, serotonin 2A receptors, NMDA receptors, K channels, or any peptide comprising SEQ ID NO:9, SEQ ID Nos. 11-16 or cytoplasmic proteins or compounds suitable for inhibiting the specific interaction between a signal-transducing interaction and a cytoplasmic protein; one of skill in the art would reasionably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, Applicant was not in possession of the claimed genus. See University of California v. Eli Lilly and Co. 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997).

Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. 112 is severable from its enablement provision (see page 1115).

Conclusion

20. No claim is allowed.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Blanchard whose telephone number is (571) 272-0827. The examiner can normally be reached at (571) 272-0827 from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bonnie Eyler, can be reached at (571) 272-0871. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1123.

Official papers related to this application may be submitted to Group 1600 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The official fax number for Group 1600 where this application or proceeding is assigned is (703) 872-9306.

Respectfully,
David J. Blanchard
703-605-1200

JANNY R. HELMS, PH.D
PRIMARY EXAMINER